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## **How do we predict advertising attention and engagement?**

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# **HOW DO WE PREDICT ADVERTISING ATTENTION AND ENGAGEMENT?**

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**Paper presented at ARF Annual Convention 2007**

## **Abstract**

This paper develops two new definitions for attention and engagement. Active attention is primarily a conscious rational construct, and level of attention is therefore defined as the amount of conscious 'thinking' going on when an advertisement is being processed. Engagement, however, is predicted to be a subconscious emotional construct, and level of engagement is therefore defined as the amount of 'feeling' going on when an advertisement is being processed. I present evidence to show these two constructs operate independently of one another and discuss how research can predict the levels of emotional engagement and rational attention that advertisements are likely to generate. Initial results from a research system designed to do this indicate marked differences between UK and USA TV advertising, but that that USA TV and print ads perform very similarly. It also shows that use of multimedia increases engagement.

## **Introduction**

In 2005 I published a research study in Journal of Advertising Research which showed that advertising with high levels of emotion can be discriminated against by recall metrics (Heath & Nairn 2005). In 2006 I followed this up with a research study which investigated the effect on brand favourability of rational and emotional content in advertising (Heath, Brandt & Nairn 2006). These two studies together call into question the long-held idea that advertising works primarily within an information processing paradigm, delivering persuasive messages '*...openly, in the bare and pitiless sunlight*' as Rosser Reeves put it (1961:70). In this paper I assemble learning from psychology to try to define what the implications of these findings are for the definition of engagement, what exactly is the role of attention, and how these two concepts interact with one another.

Heath Brandt & Nairn (2006) was a two-part research study. The first part tested online a total of 43 currently on-air TV ads (23 in the USA and 20 in the UK) for their emotional content and rational content using a research technique called the CEP<sup>TM</sup>Test (Cognitive Emotive Power Test). This test, operated by OTX, quantifies two constructs: Cognitive Power<sup>TM</sup>, which measures the potency of the message and rational information in the advertisement, and Emotive Power<sup>TM</sup>, which measures the potency of the emotional content or creativity in the advertisement. The second part used an independent online sample to measure favourability towards each of the brands being advertised, using a 10 point scale. In this test, respondents were also shown selected video sections of each of the advertisements to

ascertain whether they had seen them before. The brand favorability scores were then split between those who did and did not recognize the advertisement, enabling the difference in brand favorability created by exposure to the ads to be calculated.

With these two data sets it was possible to examine the correlation between the three different constructs: Emotional Content (Emotive Power™), Rational Content (Cognitive Power™) and Shift in Brand Favorability. Despite differences in advertising styles across the two countries, the results were consistent. Emotive Power™ showed a significant linear relationship with the shift in favorability, but Cognitive Power™ showed no significant relationship at all.

The implications from this study are that it is not the rational 'message' that drives favourability towards brands and makes them strong emotional, but the emotional 'creative' content. If this is the case, then it means we have to re-examine the idea that the main purpose of engagement is to make the message in the advertising more effective.

### **A) Defining Attention and Engagement**

Bob Baroccci's definition in the ARF Engagement Definitions Document: *'Engagement is a prospect's interaction with a marketing communication in a way that can be proven to be predictive of sales effects'* (ARF 2006:4). If it is assumed that brand favourability will predict sales effort, then the results of the study described above suggests that it is interaction with the emotional content in advertising that best predicts sales effects. So in this section I am going to start by defining two constructs – attention and emotion – and then use them to define engagement.

According to the Longman English Dictionary, the word 'engage' means *'to hold the attention of, involve'* (1984: 484). Despite this apparently clear definition, attention appears in only 3 of the 23 definitions in the ARF Engagement Definitions Document (ARF 2006), and involvement in only one. This is perhaps explained by the presence of a second more emotional definition in the Longman Dictionary: *'to induce to participate'* (op. cit.). Yet emotion is mentioned in only 5 of the definitions.

It is important to have a clear understanding of what attention is, and what it means when we talk about different *levels* of attention being paid to something. Marketing textbooks tend to use attention in a loose 'directional' way (Heath & Nairn 2005), similar to William James' definition at the end of the 19<sup>th</sup> Century: *"... the taking possession by the mind, in clear and vivid form, of one out of what seem several simultaneously possible objects or trains of thought"* (James 1890: 403). Attention, however, is not a directional on-off process, any more than consciousness itself: Damasio states *'...both consciousness and attention occur in levels and grades, they are not monoliths, and they influence each other in a sort of upward spiral'* (2000: 91). It is important therefore to consider not just the direction of attention but the *level* of attention being paid. In this article, I define the level of attention as *'The amount of cognitive resource being deployed'*, in line with MacInnis &

Jaworski (1989). In layman's terms this means the level of attention is the amount of 'Conscious Thinking' directed at the advertising.

It is also important to be clear about what is meant by the word 'emotion'. The Longman Dictionary definition of emotion is '*strong feeling (e.g. anger, fear, joy) usually involving physiological change*' (1984: 478). This suggests emotion is something that is palpable, significant and readily perceivable. Using this definition Mast and Zaltman are correct when they say '*What makes emotions specific is cognitive appraisal*' (ARF 2006:19). But the Oxford Dictionary definition of emotion includes 'love' (Oxford Compact English Dictionary 1996: 321) which may not manifest as a physiological response, but may simply be a change in attitude. Similarly Roseman (1991) describes hope, joy, relief, and liking as emotions in his appraisal theory, and this opens the door to feelings such as optimism, contentment, appreciation, gratitude.

The definition I have adopted in this paper is to use emotion to signify *any* stimulation of the feelings, at any level. It follows that emotional content in advertising represents *anything* that is capable of stimulating the feelings of the viewer. This might range from people expressing love, anger, excitement, boredom, curiosity, appreciation, amusement, etc., to situations which are humorous or poignant or dramatic etc., to visuals that are elegant or beautiful, to footage that is beautifully shot with high production values, to background music that is just plain nice to listen to. Note that using this definition, emotional content does *not* have to produce an *overt* 'emotional' response by the consumer. So you don't have to laugh or cry for something in an advertisement to be categorised as emotional content. This becomes evident when you look at the way in which emotion is processed.

### **Processing of Emotion**

Lavidge & Steiner (1961) introduced what was probably the first advertising model to attempt to address the role of emotion. Their model advocated three components of advertising effectiveness – Cognitive (the realm of thought), Affective (the realm of emotions), and Conative (the realm of motives). They described a sequence of six stages – Awareness (cognitive) → Knowledge (cognitive) → Liking (affective) → Preference (affective) → Conviction (conative) → Purchase (conative) – reflecting the thinking of the time, which was that cognition had primacy in processing over affect (Schachter & Singer 1962). Nowadays the idea of conviction and motivation tends to be replaced by attitudes, so in simple terms, 'conscious thinking' leads to 'feeling' which leads to 'attitude change' which in due course leads to a purchase decision.

They were not to know at the time, but they got it seriously wrong. Feelings are much more important and influential than we in the West tend to think they are (Gordon 2006), and are processed much more quickly than we think they are. Zajonc was the first to assert this (1980), concluding there were three main reasons why feelings must be pre-cognitive: First, they are unavoidable: '*One might be able to control the expression of emotion but not the experience of it*' (1980: 156); Second, they operate without the need for words and are very hard to verbalise: '*The communication of affect relies... on non-verbal channels... Yet it is remarkably efficient*' (1980: 157); Third, they are hard to measure: '*If ... preferences were nothing more than cognitive*

*representations ...then the problems of predicting attitudes, decisions, aesthetic judgements, or first impressions would have been solved long ago.'* (1980: 158).

Zajonc concluded that cognition and affect may depend on separate psychological and biological systems. Le Doux (1998) refined this idea, hypothesising that there are two different emotion circuits operating in a state of anxiety. The first of these, described in Eysenck & Keane (2000), is a fast-acting response which bypasses the 'cognitive' cortex, and '*...allows us to respond rapidly in threatening situations*' (2000:493). The second is a slow-acting circuit which passes through the cortex, and '*produces a detailed evaluation of the emotional significance of the situation, and allows us to respond to situations in the most appropriate fashion*' (2000: 493). Le Doux characterises the two systems by describing the response of someone who comes across a snake-like stick on the path in a jungle. The fast-acting response causes the person to jump back and break out into a sweat; the slow-acting cognitively-moderated response then identifies the object as a stick, and the person relaxes (Le Doux 1998). Note that both these responses might be described as 'arousal', but one is instinctive, and the other is driven by cognition. Le Doux's ideas are widely quoted by practitioners (e.g. Du Plessis 2005, Cramphorn 2005) but it should be noted that his model is developed specifically to describe anxiety-related responses, something which hopefully doesn't occur much in advertising. Of this, more later.

Damasio (1994) can be credited with initiating modern thinking about how emotions are processed. He uses the concept of a 'limbic' system in the brain, a construct developed by MacLean (1952) to represent the original mammalian brain, which lies beneath the more recently developed neo-cortex. The limbic system, sometimes also called the 'visceral' brain, was originally responsible for the processing of mammalian instinctive and survival functions (e.g. fear, sexual drive, hunger etc.), and it is this system that is now our centre of emotional processing. As it originated as part of the body's defence system, the limbic system operates pre-cognitively and autonomically. If it didn't, we would have been eaten by predators and have become extinct long ago. More recently he has provided evidence that emotions and feelings are formed in what is called the '*proto-self*' (sic), whereas thoughts are formed in what is known as *core consciousness* (Damasio 2000). He shows that activity in the proto-self always precedes activity in core consciousness. This therefore means that emotions and feelings are always formed pre-cognitively (2000: 281).

This concurs with Mast & Zaltman's view, that '*The processing that underlies (emotional) evaluation is enormously fast and does not require conscious effort*' (ARF 2006: 19). It also agrees with Norm Lehoullier's view, which is that the first level of engagement requires the consumer to be '*Emotionally receptive...*' (ARF 2006: 4). So this means that Lavidge & Steiner's model, far from being about 'thinking' leading to 'feeling' which leads to 'motivation', should really be Figure 1:

**Figure 1:**

**FEELINGS → CONSCIOUS THINKING → ATTITUDE CHANGE → DECISION**

### **Emotion and decision-making**

Lavidge & Steiner predicted that motivation would be the sole influence on decision-making. Psychology has shown this also to be an incorrect assumption. Damasio (1994), referencing cases where rational decision-making capability is impaired, has shown that emotions and feelings act as a gatekeeper to decisions, providing a bridge between the rational activity of the neo-cortex and the non-rational (limbic) functions of the sub-cortex. *'The apparatus of rationality, traditionally presumed to be neocortical, does not seem to work without that of biological regulation, traditionally presumed to be sub-cortical.'* (1994: 128). He concluded that cognition is *'hard-wired'* (sic) via the emotions, and that feelings are therefore capable of impeding cognition and even driving decisions in the face of negative cognition. This he uses to explain intuitive decision-making, which he believes arises from *'somatic markers'* (sic) – defined as feelings associated with outcomes and embedded in semantic memory by past learning. A negative somatic marker associated with a particular outcome acts as a disincentive, but *'when a positive somatic marker is juxtaposed ... it becomes a beacon of incentive'* (1994: 174).

Bagozzi et al (2002) support Damasio's Somatic Marker theory: *'We suggest that such unconscious processes influence or bias a number of antecedents to decision making'* (2002: 98). And in later work Damasio himself constructs a model showing two parallel processing routes – route 'A' which is cognitive and route B which is 'affective'. He predicts that generally both routes will activate in parallel, however, *'On occasion, path B can lead to a decision directly, as when gut feeling impels an immediate response'* (Damasio 2003: 149).

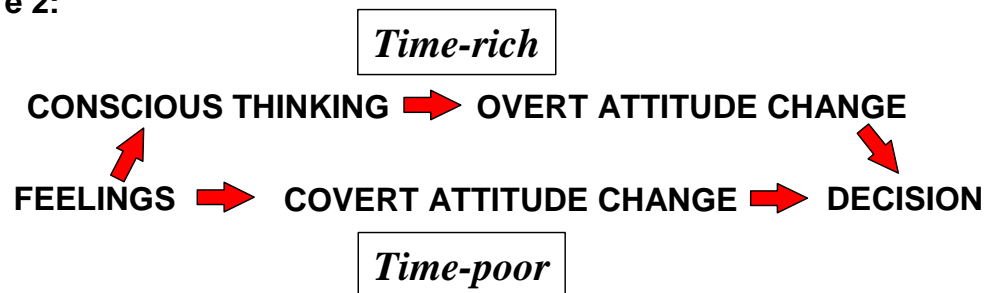
Damasio's theory has been validated by Shiv & Fedhorikhin (1999). They gave subjects an unrelated task to perform, and as a reward offered them the choice of either chocolate cake or fruit salad. Half the sample was told they had to make their minds up immediately, and the other half was told they could decide later on. It was found that those operating in the constrained time situation tended to choose chocolate cake, and those who had no time constraint tended to choose fruit salad. In other words, when time is limited (e.g. busy parents shopping for groceries with their children) our choices are likely to be driven by our feelings rather than by logic or rationality.

In circumstances like this the change in attitudes which occurs will not be overtly evident. This concurs with Ehrenberg's opinion (1974) that attitude change need not precede change in behaviour: *'It seems to be generally assumed that ... attitude changes must precede the desired change in behavior. There is little or no evidence to support these assumptions'* (Ehrenberg 1974: 30). So it is necessary to divide attitude change into overt attitude change, where the consumer is aware of and can answer to questions about their new attitudes, and covert attitude change, where the attitudes which have changed are subconscious and not evident. This corresponds to the idea of explicit learning and implicit learning (Heath 2001, Heath & Nairn 2005).



So, reflecting Damasio's theory, two routes emerge for processing advertising, shown in Figure 2.

**Figure 2:**



This model, however, will fall down, because the covert attitudes have no way of being attached to the brand. Brand linkage demands at least some passive learning to be taking place, even if this takes place at low levels of attention. So it is necessary to examine in more detail what happens in conscious thinking.

### **Conscious Thinking**

Level of Attention is defined as the amount of 'conscious thinking' going on. James defines two boundary levels of attention – active and passive. Active Attention is when application is wilful or deliberate, and the process is controlled by the individual's goals. This corresponds to what is known as 'top-down processing' (Eysenk & Keane 2000: 2), a processing approach which is goal-driven. Passive Attention is when the application of attention is inadvertent and is controlled by external stimuli. This corresponds to what is known as 'bottom-up processing', a processing approach which is stimulus-driven. (James op. cit., see also Eysenck & Keane 2000: 119). So 'conscious thinking' (i.e. attention) can vary between these two boundary states. In respect of processing and learning from advertising, high attention fully-conscious thinking is called 'active learning', and low attention semi-conscious thinking is described as 'passive' learning. Learning which takes place without any attention is subconscious, and is termed 'implicit' learning (Eysenck & Keane 2000: 532).

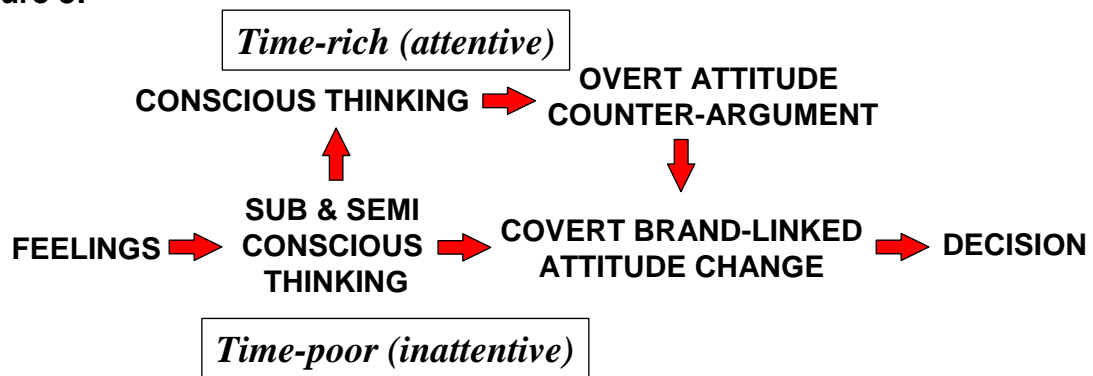
Daniel Dennett, in a fascinating book about consciousness, (Dennett 1993) questions how much our conscious thinking needs to be involved in decision-making. As an example he relates the story of the Grey Walter Precognitive Carousel. This was a carousel of slides which was given to patients who had an electrode implanted in their motor cortex. The carousel had an apparently normal button for them to press to advance the slides, and they were asked to do this whenever they wanted to. What they were not told was that the button was a dummy and the carousel was wired up to be advanced by the amplified signal from their motor cortex.

If conscious thought is what initiates action, then the patients should have noticed nothing. In practice, they complained that the slides appeared to be anticipating them and moving forward not just before they pressed the button but *before they made the decision* to press the button. The advance was so

marked that the patients found themselves expecting the slides to move a second time when they pressed the button.

What this shows is that much of our decision-making happens at a subconscious level, and is reported to our conscious brain post-hoc. That wouldn't be a problem were it not for the fact that Attention operates only in our conscious brain, not in our subconscious brain. This enables us to interpret Damasio's two routes slightly better, as in figure 3:

**Figure 3:**



All this is really saying is that we have *always* formed an attitude about a decision through emotional and a subconscious rational processing before we start to consciously and actively 'think' about it, so our conscious thinking tends either to support the decision or counter-argue it. If you bear in mind that all this attitude formation happens very fast, then there is good support for this model. Tim Ambler (2000) of London Business School has developed a model on exactly these principals, the Memory-Affect-Cognition (MAC) model. He proposes three levels of behaviour. At the first level consumers operate only on memory, buying in a mindlessly habitual manner. At the second level choice is strongly influenced by affect, and conscious processing is inhibited. At the third level cognition is used to rationalise the decision, provided that affect is no obstacle, in accord with Damasio (1994). And there is empirical evidence to support his model. His first level 'mindless habitual' buying behaviour is similar to the 'thoughtless' buying behaviour which has been observed by Alba (2000). And his second level idea of conscious processing being inhibited corresponds exactly with the 'blocking' (sic) behaviour found by Van Osselaer & Alba (2000). They manipulated the order of exposure of brand cues and attribute cues, and found that initial exposure to (emotive) brand cues caused consumers to test only enough additional data to see if it strengthened or weakened the brand association with quality. Once it did then no further updating occurs, and further product information cues were ignored.

### Definition of Engagement

Like Norm Lehoulier, Taddy Hall says that successful engagement begins with '*...a conscious or more likely unconscious, emotional response triggered by a piece of copy*' (ARF 2006: 3). But if, as in our model, attitudes can be changed without active conscious processing, then the level of Engagement a consumer has with advertising is going to be *entirely* dictated by the amount

of 'feeling' that goes on at the start of the process. So 'Level of Engagement' should rightly be defined as *'the amount of subconscious 'feeling' going on'*. This then operates as an 'affective' equivalent to the 'cognitive' definition of attention defined earlier, being *'the amount of conscious 'thinking' going on'*.

So this yields two definitions, as follows:

- **Level of Engagement:** The amount of subconscious 'feeling' going on when an advertisement is being processed
- **Level of Attention:** The amount of conscious 'thinking' going on when an advertisement is being processed.

The ARF working definition of engagement is *'Turning on a prospect to a brand idea enhanced by the surrounding context'* (ARF 2006: 10). Defining engagement as 'the amount of feeling going on when an ad is processed' seems to me to precisely reflect the idea of 'turning on... enhanced by surrounding context'. There is, of course, another important idea also enshrined in the ARF working definition, which is that the turning on relates to a *brand* idea, not just to the execution itself. I will return to this later.

The value of these two definitions of engagement and attention is that they are complimentary and do not overlap. They measure behaviour towards advertising based on different constructs: one conscious and the other subconscious, one thinking and the other feeling. But this, of course, raises the important question of how, if at all, these two constructs interact. This is examined in the next section.

## **B) What is the relationship between Attention and Engagement?**

The first person to seriously question the amount of attention being paid to TV advertising was Herb Krugman (1965). Krugman conducted a series of experiments with Norman Mackworth in 1968 using eye cameras, noting the *'...relatively motionless, focused, or passive eye characteristics of TV viewing'* (1977: 8). He went on to test the brainwaves of a subject watching TV and reading a press advertisement (1971), and found that the nature of brain waves emitted during TV watching confirmed that this was what he termed 'low involvement' processing when compared to print.

Krugman's research took place in a non-distracted environment when consumers were being asked simply to look at the ads being shown them. What his results suggest is that consumers can 'engage' with TV ads without necessarily needing to use the same amount of conscious thinking that they use when reading a newspaper.

In 2003, working with New International, I decided to test this hypothesis. Establishing levels of attention in real life behaviour is especially difficult. The amount of conscious thinking a person is doing at any one moment will be vary according to their desire for information and can change with extraordinary rapidity (James 1890), and sadly we are not equipped with a handy dial on our forehead which tells everyone how much thinking is going on. Similarly, you cannot ask people to monitor how much attention they are paying at a particular moment, because it is tantamount to asking them how much thinking they are doing. And if subjects are asked to attempt to monitor

their attention levels then their behaviour is invariably affected, and attention levels generally increase. All this means that using simple questions like 'how much attention did you pay to the advertisement?' or 'did you think the advertisement was good at getting attention?' produce garbage data.

Most of the research that has been carried out into attention – generally in the field of psychology – has used experimental approaches in which attention levels are externally manipulated. These inevitably result in high levels of abstraction from reality. But there is one indicator which betrays how much 'conscious thinking' is going on, and that is the speed of our eye movements.

### **Measuring Attention in real time**

The eye sees not by moving smoothly across the field of vision but fixating successive points in 'jumps', known as saccades (Huey 1908 / 1968). During moments of fixation the eye can see clearly only a tiny 2° area, equivalent to around 6 - 8 letters, although it can recognize objects in a about a 5° area. Everything else the eye can see is in what is called the periphery, so if we are highly attentive and 'hungry' for information, we move our eyes around so we can focus on more and collect more information. Conversely, if we are inattentive and feel we don't need much information we move our eyes around more slowly (Rayner & Serano 1994).

These eye movements are very fast and completely automatic. As such they provide an excellent means of measuring the amount of conscious thinking we are doing. This in turn equates to the level of attention we are paying. So, as the famous German psychologist Kroeber-Riel stated, '*Eye fixations... serve as a behavioural measure of information processing*' (1980: 147).

These tiny eye movement are barely visible to an observer, but can be tracked very accurately by a modern computer-operated eye-camera system. Eye cameras, however, only measure visual attention, and in TV advertising processing we activate two modes of information processing – visual and auditory – so it is possible in real life for the eyes to be looking at something and the ears to be distracted and listening to something completely different. But the visual and auditory attention systems are '*supramodally*' linked (Schmitt et al 2000: 108) so this problem can be overcome if viewing is free from external distraction. In these circumstances it is likely that cross-modality will be minimised, and visual attention will be a good measure of the overall level of conscious thinking (i.e. attention).

Using a lightweight head-mounted eye-camera system we at Bath School of Management have been able to measure attention towards advertising in a near-real media consumption situation. The motives of the study were disguised so that none of the subjects knew that we were interested in advertising (it was made out to be a pharmacological trial to investigate the effect of TV watching on the eyes). This prevented artificially increased levels of attention being paid towards the advertising. Half of the subjects were then left to get used to the equipment for 10 minutes, during which they were offered copies of two current newspapers to read. Then all subjects were shown an episode of *Frasier* which contained 12 selected ads in three ad breaks (one before, one in the middle, one after). TV ads were rotated to prevent order effect.

The results, presented at the MRG conference in Madrid in 2004, and recently summarised by Heath & Feldwick (2007), suggested that the average attention paid towards TV advertising is between one third and one half that paid towards newspaper advertising. In other words, Krugman's findings were right, and TV advertising is indeed low attention compared with press advertising. But what was even more revealing was the nature of processing observed. With newspaper reading the processing was clearly goal-driven. Subjects started reading at a deliberately determined point of the paper, and scanned pages carefully and systematically. Ads were sometimes briefly fixated, sometimes carefully read, sometimes avoided altogether, but never did the eyes wander over the paper aimlessly.

With TV, processing was completely different. A few subjects started by watching the screen carefully and followed the action, but most watched in a 'lazy' way, exactly matching Krugman's description of "motionless, passive eye characteristics". Some looked directly at the screen, but others continuously scanned from side to side across it, never looked directly at the screen at all,. Within a few minutes all subjects would look away from the screen, and this continued throughout the 30 minute programme, sometimes for lengthy periods. At least one subject fell asleep just before the centre ad break, despite it being 11 o'clock in the morning. When challenged she stoutly denied having fallen asleep and claimed she enjoyed the programme. She only accepted the accusation when she was shown the ads at the start of the centre break and agreed she couldn't remember any of them.

What this suggests is that TV and newspaper processing are quite different. Newspaper processing appears to conform to the systematic goal-driven 'top-down' processing of the Information Processing Model. But TV processing is predominantly automatic, stimulus driven 'bottom-up' processing.

This is frankly no great surprise. TV is watched primarily as a form of relaxation, and as Tellis eloquently points out, consumers '*... do not yearn for ads*' (1998: 121). Clancey (1992) reveals two thirds of respondents are doing some other activity when watching television, and Soley (1994) quotes various studies which find between 20% and 40% of people leave the room when the advertising breaks are on. And as long ago as 1989 Gilmore & Secunda quoted sources which found that between 70% and 90% of viewers 'zipped' (i.e. played them through fast forward) ads in previously recorded material. But it does suggest that, although the model in Figure 3 may apply to print, for a lot of TV advertisements the model is going to look more like the 'Time Poor' model, as shown in Figure 4 below.

**Figure 4: TV Processing Model**



### **Measuring Attention and Emotion**

The eye camera is a method of measuring attention. In addition, it is possible to measure emotional content in advertising using the CEP™Test. This

therefore gives the opportunity to examine how emotional content in advertising interacts with attention.

A general assumption amongst practitioners and academics is that emotion is a driver of attention. This theory can be traced back to Berlyne (1964), who saw arousal as being critical for learning to take place. Berlyne's thinking was developed by Kroeber-Riel into an 'Activation Theory' (1979, 1984), which held that *'The emotional content of a stimulus induces 'phasic' activation (i.e. arousal) and activation promotes information processing'* (1984: 152). Ray & Batra (1983) extended this, postulating that emotion increases attention and memory: *'...affective advertising may ... be more effective ... because it is attended to more, processed more, evaluated more favourably, and remembered more'* (1983: 544). The idea recurs frequently in both practitioner and academic literature (Biel 1990, Doyle 1994). For example, Du Plessis identifies 'Heath's Error' as: *'All the evidence about 'emotional appeals in advertising' shows that their main role is to attract attention, therefore it is unlikely that, the more emotional an advertisement is, the more it will become low involvement processed'* (Du Plessis 2005: 141). And Page states confidently *'... we pay more attention to emotionally powerful events'* and accompanies this with a diagram which shows emotion transforming 'shallow' low attention to 'deep' high attention (Page 2005: 3).

But all these are assumptions which have never been empirically verified. In order to test their validity we set up a study at Bath School of Management in which we manipulated a set of advertisements to have high levels of emotional content and low levels of emotional content using a technique similar to the CEP™Test. We then exposed these to respondents in exactly the same way as described above. The results, which will be published in full later in 2007, were astonishing. High levels of emotional content in advertising were significantly correlated at 99.9% with LOWER levels of attention (Heath & Feldwick 2007). In other words, the more emotional elements there are in an advertisement, the less cognitive resource is used to process it, i.e. the LESS attention is paid to it.

### **Attention and Liking**

In the same experiment we also measured liking of advertising. Again, Du Plessis is clear about the relationship between liking and attention. Citing studies from the Netherlands and Australia, he states: *'These studies show that there is little doubt ad-liking has an effect on the ability of a commercial to get attention...'* (Du Plessis 2005: 147). But when we measured the level of real-time attention paid to our 12 advertisements and correlated it with liking we found a similar inverse relationship, statistically significant at 98.8%. In other words, when people like advertising they use less cognitive resource to process it, i.e. they pay LESS attention to it.

### **Du Plessis's Error**

Du Plessis's and Page's error is to assume that advertising is processed in a top-down goal driven manner. This is, after all, the state in which all market research testing takes place. In these circumstances it might be expected that advertising which is liked will be given more attention. But if advertising is processed in a bottom-up stimulus-driven manner, then people will respond to

the nature of the stimulus. Since it has been shown that emotion is processed without attention and without the need to use working memory (Damasio 2003) then it stands to reason that if, there is a lot of emotional content in advertising and not much rational cognitive content, less cognitive resource will need to be deployed. Conversely, if an advertisement has a high level of rational cognitive content then viewers operating in a stimulus driven mode will deploy more cognitive resource (i.e. more attention) when processing it.

Modern psychologists would not be surprised by this result. There is evidence that attention is primarily a limbic response, deployed especially when we feel threatened. The experiment showed a close but not significant correlation between emotional content in the advertisements tested and liking. If we like a piece of advertising we don't feel so threatened by it, and so there is less need to deploy cognitive resource to understand and counter-argue it. Conversely, if we don't like advertising, or if the advertising is devoid of emotion, we are likely to feel less comfortable and so pay more attention.

It should be noted that the experiments tested only advertising with positive emotional content. Advertising with negative emotional content may well make people feel more uncomfortable and therefore cause them instinctively to pay more attention to counter-argue the negative feeling. This has been predicted elsewhere (Young 2006). Of course, the downside is that negative emotional content processed at low attention will attach negative emotional values to a brand, which may well weaken the relationship between the consumer and the brand, not strengthen it.

### **Relationship between Attention and Engagement**

Level of Engagement is defined as 'The amount of subconscious 'feeling' going on when an advertisement is being processed'. It is reasonable to assume that the amount of feeling which goes on when an advertisement is processed is dictated by the amount of emotional content in the advertisement. Thus high levels of emotional content will equate to high levels of engagement.

But we know in the experiment carried out that in certain circumstances – TV advertising watched in a normal relaxed manner – the level of emotional content correlates with lower levels of attention. What this suggests is not necessarily that there is an *inverse* relationship between levels of engagement and levels of attention, but that there is NO direct relationship between levels of attention and levels of engagement. The two are able to operate orthogonally. You can have high engagement and low attention, and low engagement and low attention. Indeed there seems no reason to suppose you cannot have high engagement and high attention, and possibly even low engagement and high attention.

The idea that TV viewers can be highly engaged (i.e. experiencing high levels of emotional empathy) and at the same time paying little attention (i.e. using low levels of cognitive resource) is not so unlikely if you are a fan of classical music. When you listen to music in a concert your feelings are highly engaged, but it is not uncommon for your thoughts to be operating at a very low level of activity – your mind is 'blank', if you like. Thus you have high

engagement levels but low attention levels. And similarly, the idea that newspaper readers can be highly engaged and highly attentive is likewise easy to understand if you are an avid book reader. When you are reading a book your feelings are highly engaged, and at the same time you are consciously deploying large amounts of cognitive resource processing the words and sentences, extracting meaning from them, interpreting the meaning, and storing it as your own version of the narrative. So in this case you are manifesting high levels of engagement and high levels of attention.

So the conclusion from this section is that there is no reason why engagement and attention should be linked, and there is good evidence to say that, in the case of watching TV advertisements, they are not. This explains the findings of Heath Brandt & Nairn (2006), that emotional content drives brand favourability, not rational content. If, in real life, people do not deploy much cognitive resource when watching TV, then they will generally not be effectively processing the messages and other rational information content in the advertising. They may well, however, be engaged, and processing the emotional content very effectively. It is therefore this emotional content which exerts the influence on them, and increases favourability towards the advertised brand. This is not implausible: as discussed in Heath Brandt & Nairn there is evidence that emotional content is actually processed better when less attention is paid (Bornstein 1992).

### **C) Predicting levels of Attention and Engagement**

I discussed earlier the difficulty of measuring levels of attention, and the fact that we are very bad at being able to tell how much 'thinking' we are doing at any one time. Measuring the level of 'feeling' is an even bigger problem. People find it hard enough to describe *what* they are feeling at any one time (Poels & Dewitte 2006): imagine what would happen if you were to ask them to describe *how much* of this indescribable thing they were experiencing!

So, using our definition of level of engagement – the amount of subconscious 'feeling' going on when an advertisement is being processed – it is evident that level of engagement is going to be best measured using some external response mechanism. Facial expression measurement has been attempted, but is nowhere near accurate enough to be used to compare across a range of advertisements. Some success has been achieved with arousal measurement techniques such as heart rate, skin temperature, and skin conduction monitoring (Poels & Dewitte 2006), but others have challenged the idea that arousal is a measure of affective response (Wiles & Cornwell 1990). Extensive research continues into this area.

But one simple way of predicting the likely levels of engagement and attention from advertising is to classify the nature of the advertisement. By measuring accurately the relative perceived levels of emotional and rational content in an advertisement it should be possible to estimate the relative levels of engagement and attention that will be paid to that advertisement.

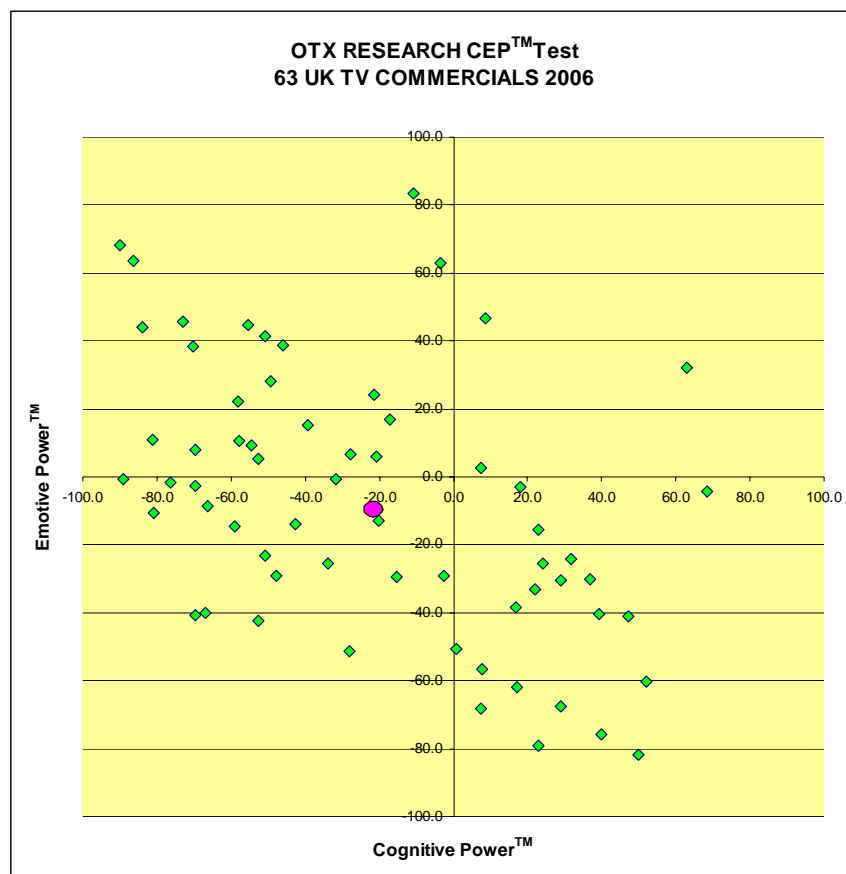
The CEP™Test is a system that has been designed to do this. As mentioned earlier, the system quantifies two constructs: Cognitive Power™, which measures the potency of the message and rational information in the



advertisement, and Emotive Power™, which measures the potency of the emotional content or creativity in the advertisement. It seems likely that these two constructs will predict potential levels of emotional engagement with the advertising and potential levels of rational attention paid towards the advertising. The system will not on its own predict engagement with the brand idea – this requires an additional research phase which can determine how well-branded the advertising is – but it will indicate the potential the advertising has for achieving engagement and attention.

Early indications are that this type of approach to research yields important results. Figure 5 shows results for 64 UK TV commercials, these and all other CEP™Test results reproduced with the permission of OTX.

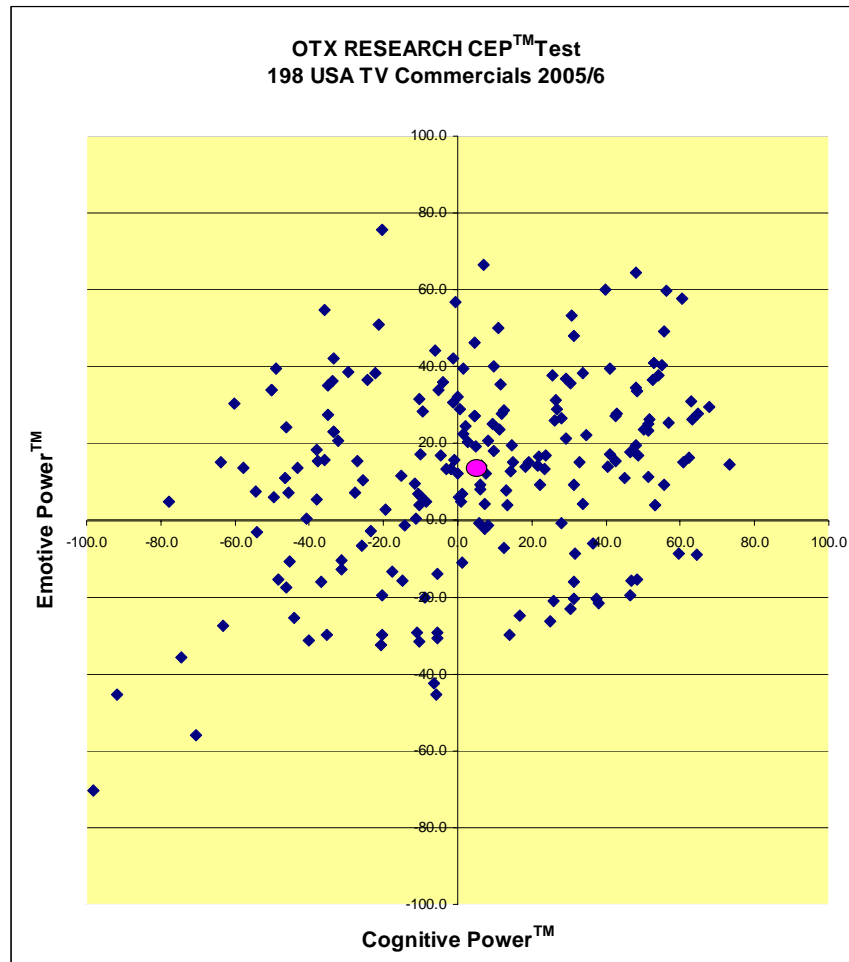
**Figure 5**



It is immediately evident that the levels of emotional and rational content vary quite dramatically between ads, as illustrated by the way that ads are spread across the axes of the map. In the UK there appears to be a tendency for TV advertising to operate on a spectrum from 'High Emotional Content + Low Message' to 'Low Emotional Content + High Message'. This suggests that, in the UK, TV advertising tends to be viewed either with high engagement / low attention (top left quartile) or low engagement / high attention (Top right quartile), exactly as was found in the experimental eye camera research. Of course, quite a lot of advertising is deficient in the level of both emotional and rational content, and so is likely to encourage disengagement and low attention. These ads appear in the lower left quartile.

In the UK very few TV commercials have the potential to encourage both high levels of engagement and high levels of attention. This does not seem to be the case in the USA. Figure 6 shows results from 198 USA TV commercials, and the pattern here is that advertising is spread in all four quarters of the map.

**Figure 6**

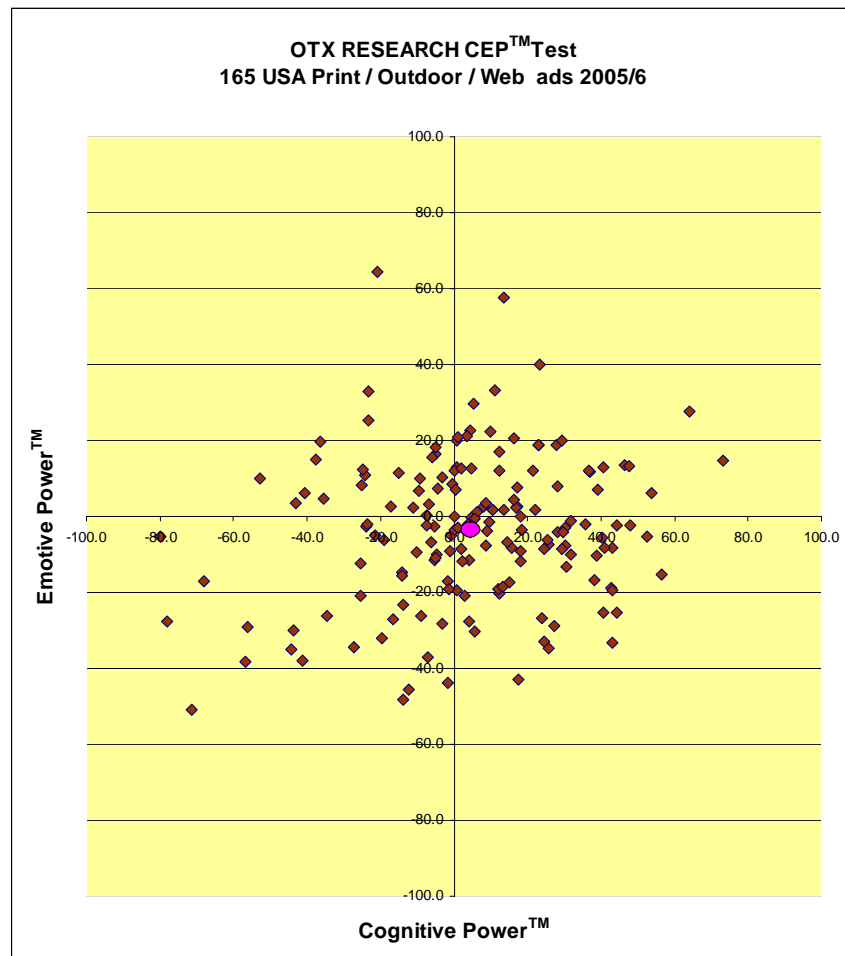


This suggests that, in the USA, quite a lot of TV advertising is potentially able incite both high levels of engagement and high levels of attention, something that UK ads are less able to do. There are TV ads in the US where viewers are likely to engage but not likely to pay much attention – advertisements for Oreo Cookies and Johnson & Johnson baby Products for example both appear in the top left quartile – but they do not reach the extreme levels of high engagement + low attention that UK ads do. And what is also less likely to be the case in USA TV advertising is that viewers will pay high attention but *not* be very engaged: this is illustrated by the relatively low number of ads appearing in the lower right quartile.

The relative performance of TV advertising in the USA and UK is shown by the means of the ads tested. In the UK the mean is – 21.6 on Cognitive Power™ and + 7.8 on Emotive Power™; in the USA it is + 4.2 on Cognitive Power™ and + 12.5 on Emotive Power™. So USA advertising on average has greater potential to achieve engagement and attention than UK advertising.

But an even more interesting is to look at the performance of non-TV media on the CEP™Test map. The results of tests on print, instore, and web advertising are shown in Figure 7.

**Figure 7**



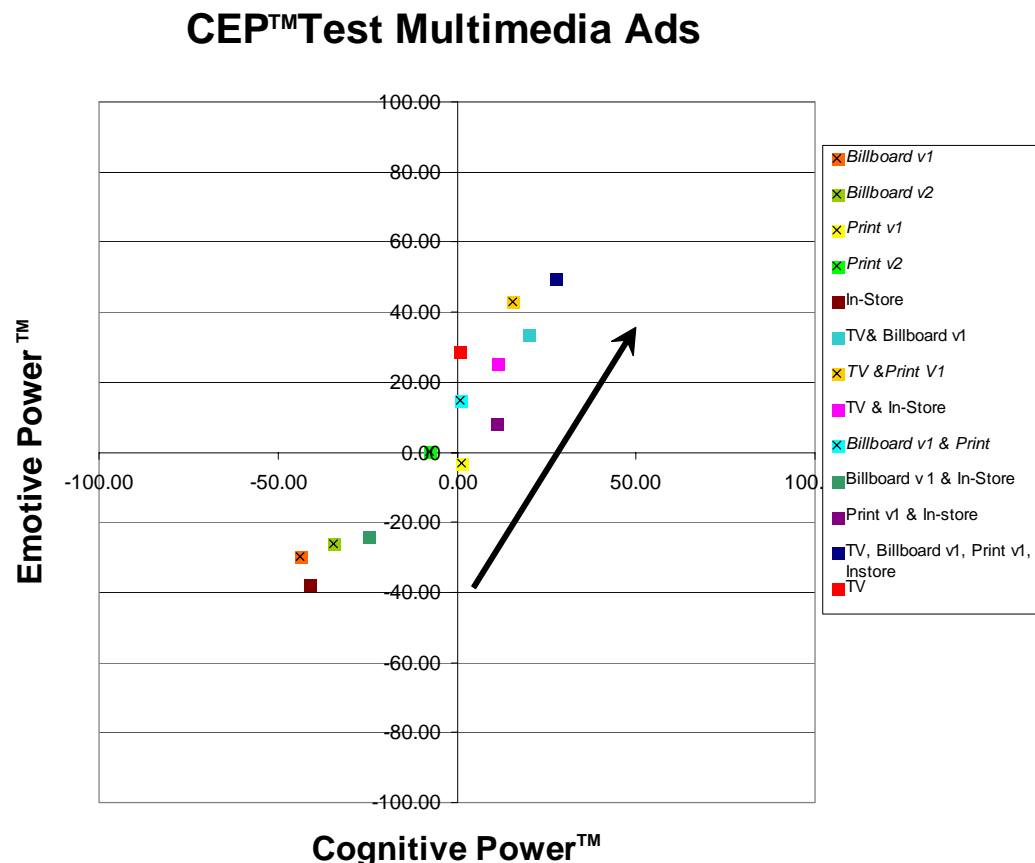
It is at once clear that these media seem to perform almost as well as TV, operating in all segments of the map. The level of dispersion is not as great, but the clear message is that these non-TV media are potentially just as effective at engaging consumers' feelings and getting attention as TV. This is reinforced by the mean of the 165 non-TV ads tested: + 4.7 Cognitive Power™ and – 3.6 Emotive Power™. On a scale of +100 to – 100 this means that there is no significant difference at all between TV and non-TV in getting attention, and TV is only a little higher in its ability to get engagement. Indeed, remove websites and in-store executions from the graph, and you find print on its own differs very little from TV.

This challenges the long established myth that print and other supposedly secondary media are less well equipped to engage consumers than TV. Print is often used as a medium for communicating information, but these finding suggest its use as a brand-building media is perhaps something which more advertisers should consider.

One final finding is of particular interest in the area of engagement. It has long been held that multimedia campaigns enhance engagement and attention, by providing a variety of exposures to a campaign idea. The

CEP™Test has found one example which illustrates this exceptionally well. The campaign in question was creatively very consistent, and was tested in finished form in TV, print (two ads), billboard (two ads), and in-store display. Results are shown below in Figure 8.

**Figure 8**



It is clear that in this example the In-store display and the two Billboard ads do not appear likely to achieve much attention or engagement on their own, and even together they are still relatively poor. The Print ads do average on engagement potential, and TV is likely to be very engaging, although all are only average on likelihood of getting attention. But when TV and In-store are put together, the potential for attention goes up. And when TV and Billboard are put together the potential for both engagement and attention goes up. Put TV together with Print and the results go even higher. And the highest potential of all for engagement and attention is achieved by combining TV, Print, Billboard, and In-store.

What this suggests is that engagement and attention operate differently for individual media than they do for combinations of media. It is a clarion call for media planners to embrace all media, not just TV. Above all, it is hard evidence that, if executions are consistent and reflect the same creative idea, then synergy across media really can exist.

## **Conclusion**

In section A) of this paper I developed two definitions for Engagement and Attention:

- **Level of Engagement** is defined as the amount of subconscious 'feeling' going on when an advertisement is being processed
- **Level of Attention** is defined as the amount of conscious 'thinking' going on when an advertisement is being processed.

I suggest that this definition of engagement fits very well with the ARF working definition of engagement: *'Turning on a prospect to a brand idea enhanced by the surrounding context'* (ARF 2006: 10). 'Turning on... enhanced by surrounding context' can only be achieved if the creative execution achieves a high level of 'feeling' response in the consumer. Of course, that feeling needs to be linked to the brand idea, otherwise it is nothing more than a meaningless passing moment of stimulation.

What is important about these two definitions is that they do not overlap. Experimental research reviewed in section B) suggests that engagement and attention, as represented by emotional and rational content in advertising, operate independently and are not, as most people assume, causally connected to one another. It seems possible to be highly emotionally engaged with advertising and yet not be paying much attention, or to be highly emotionally engaged and paying a lot of attention.

Finally, I also suggest that potential for engagement and attention may be predicted by measuring the levels of emotional and rational content in advertising. Reviewing the results of one system that claims to do this (CEP™Test) confirms that advertising works differently in the USA compared with the UK, but works very similarly for TV and non-TV media in the USA. It also suggests that using a combination of different media, all of which reflect the same brand idea, will greatly enhance the level of engagement that a campaign can achieve.

If this approach finds favour, there are two next steps. One is that it is important for other research companies follow OTX's lead and develop similar ways of measuring these critically important constructs of emotional and rational content. But the more important step, the burning issue if you like, is to establish how effective these different types of advertising are. Research suggests that if advertisers wish to build strong brands then emotional engagement is more important (Heath Brandt & Nairn 2006). But it is well accepted that attention facilitates information processing (Gardener & Parkin 1990), so if advertisers wish to communicate rational news and information – performance claims, price offers, website addresses and the like – and instil these into the consumer's memory, then their advertising has to achieve reasonably high levels of attention. If advertisers need to build a strong brand *and* achieve both good communication, then their advertising needs to achieve both engagement and attention. What is certain is that achieving neither means you are in serious danger of wasting your money.

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## References

- Alba, J.W. (2000) Dimensions of consumer expertise... or lack thereof, *Advances in Consumer Research* Vol. 27, No.1: 1-9
- Ambler, T (2000) Persuasion, pride, and prejudice: how ads work, *International Journal of Advertising* Vol. 19, No. 3: 299-315
- ARF (2006) Engagement: Definitions & Anatomy, *ARF White Paper*, ed. Plummer, J. 21<sup>st</sup> March
- Bagozzi, R.P., Gürhan-Canlii, Z., & Priester, J.R. (2002) *The Social Psychology of Consumer Behaviour*, Open University Press, Buckingham, Philadelphia, USA.
- Berlyne, D.E (1964) Emotional Aspects of Learning. *Annual Review of Psychology*, Vol. 15: 115-142
- Biel, A. L, (1990) Love the Ad. Buy the Product? Why Liking the Advertising and Preferring the Brand Aren't Such Strange Bedfellows After All," *Admap*, September
- Bornstein, R.F. (1992) Subliminal mere exposure effects, in *Perception without awareness: Cognitive, clinical, and social perspectives*, R.F. Bornstein and T.S. Pittman, eds, Guilford, NY. 191-210
- Clancey, M. (1994) The Television Audience Examined. *Journal of Advertising Research*, Vol. 34 Issue 4: 76-86
- Cramphorn, S. (2004) What Advertising Testing Might Have Been, If We Had Only Known. *Journal of Advertising Research*, Vol. 44 Issue 2: 170-180
- Damasio, A.R. (1994) *Descartes' Error*. G.P. Putnam's Sons, New York.
- Damasio, A. (2000) *The feeling of what happens*. Heinemann, London
- Damasio, A.R. (2003) *Looking for Spinoza*, Heinemann, London
- Dennett, D. (1993) *Consciousness Explained*. Penguin, London.
- Doyle, P. (1994) *Marketing Management & Strategy*. Prentice-Hall, Hemel Hempstead, Herts, UK
- Du Plessis, E (2005) *The Advertised Mind*, Kogan Page, Pentonville Road, London, UK
- Eysenck, M.W. & Keane, M.T. (2000) *Cognitive Psychology*, 4th edn. Psychology Press Ltd., Hove, UK.
- Gardiner, J.M. & Parkin, A.J. (1990) Attention and recollective experience in recognition, *Memory & Cognition*, Vol. 18: 579-583
- Gilmore, R.F. & Secunda, E. (1993) Zipped TV Commercials Boost Prior Learning. *Journal of Advertising Research*, Vol. 33 Issue 6: 28-38
- Gordon, W. (2006) What Do Consumers Do Emotionally with Advertising? *Journal of Advertising Research*, Vol. 46 Issue 1: 2-10
- Heath, R.G. (2001), *The Hidden Power of Advertising*, Admap Monograph No. 7, World Advertising Research Centre, Henley-on-Thames, Great Britain

- Heath, R.G. & Nairn, A.C. (2005) Measuring Emotive Advertising – implications of Low Attention Processing on recall. *Journal of Advertising Research* Vol. 45 Issue 2: 269-281
- Heath R.G., Brandt D. & Nairn A. (2006). Brand Relationships - Strengthened by Emotion, Weakened by Attention, *Journal of Advertising Research*. Vol. 46, Issue 4: 410-419.
- Heath, R.G. (2006) The Influence of Emotional Content in TV Advertising on Levels of Attention, *Doctoral Thesis*, University of Bath School of Management, Bath, UK.
- Heath, R.G. & Feldwick, P. (2007) 50 years using the wrong model of TV advertising, *Proceedings of the 50<sup>th</sup> Market research Society Conference*, Brighton, March
- Huey, E.B. (1968) *The psychology and pedagogy of reading*. Cambridge, MA: MIT Press. Originally published 1908.
- James, W. (1890) *Principles of Psychology*, Dover, New York
- Kroeber-Riel, W. (1979) Activation Research: Psychobiological Approaches in Consumer Research. *Journal of Consumer Research*, Vol. 5 Issue 4: 240-250
- Kroeber-Riel, W. & Barton, B. (1980) Scanning Ads – Effects of Position and Arousal Potential of Ad Elements. *Current Issues & Research in Advertising*, Vol. 3 Issue 1:147-163
- Kroeber-Riel, W. (1984) Effects of emotional pictorial elements in ads analyzed by means of eye movement monitoring, *Advances in Consumer Research*, Vol. 11 Issue 1: 591-596
- Krugman, H.E. (1965) Impact of television advertising: learning without involvement. *Public Opinion Quarterly* 29 (Fall): 21-38.
- Krugman, H.E. (1971) Brain wave measurement of media involvement. *Journal of Advertising Research* Feb: 3–9.
- Krugman, H. E.. (1977) Memory without Recall, Exposure without Perception. *Journal of Advertising Research*, Vol. 17 Issue 4: 7-12
- Lavidge, R.J. & Steiner, G.A. (1961) A Model for Predictive Measurements of Advertising Effectiveness. *Journal of Marketing* Vol. 25, Issue 4: 59-62
- Le Doux, J. (1998) *The Emotional Brain*. Weidenfeld & Nicolson, London.
- MacInnis, D.J. & Jaworski, B.J. (1989) Information processing from advertisements: towards an integrative framework. *Journal of Marketing* Vol. 3, Issue 4: 1-23
- Page, G. (2005) The Power of Emotion, *Millward Brown Perspectives*, Issue 29, March: 3
- Poels, K. & Dewitte, S. (2006) How to Capture the Heart? Reviewing 20 Years of Emotion Measurement in Advertising. *Journal of Advertising Research*, Vol. 46 Issue 1: 18-37

- Ray, M.L. & Batra, R. (1983) Emotion and Persuasion in Advertising: What we do and don't know about Affect. *Advances in Consumer Research*, Vol. 10 Issue 1: 543-548
- Rayner, K. & Serano, S.C. (1994). Eye movements in reading: Psycholinguistic Studies. In M.A. Gernsbacher (Ed), *Handbook of psycholinguistics*, San Diego, CA: Academic
- Reeves, R. (1961), *Reality in Advertising*, Alfred A Knopf, New York, NY, USA
- Roseman, I.J. (1991) Appraisal determinants of discrete emotions, *Cognition and Emotion* Vol. 5: 161-200.
- Schachter, S. & Singer, J.E. (1962) Cognitive, social, and physiological determinants of emotional state. *Psychological review* Vol. 69: 379-399
- Schmitt, M., Postma, A. & De Haan, E. (2000) Interactions between Exogenous Auditory and Visual Spatial Attention. *Quarterly Journal of Experimental Psychology*, Section A, Vol. 53 Issue 1: 105-130
- Shiv, B. & Fedorikhin, A. (1999) Heart & Mind in Conflict: The interplay of Affect and Cognition in Consumer Decision Making, *Journal of Consumer Research*, vol. 26: 278-292
- Soley, L.C. (1984) Factors Affecting Television Attentiveness: A Research Note. *Current Issues & Research in Advertising*, Vol. 7 Issue 1: 141-148
- Tellis, G.J. (1998) *Advertising and Sales promotion Strategy*, Addison-Wesley, Massachusetts, USA
- Van Osselaer, S.M.J. & Alba, J.W. (2000) Consumer Learning and Brand Equity, *Journal of Consumer Research*, Vol. 27: 1-16
- Wiles, J.A. & Cornwell, T.B. (1990) A review of methods utilized in measuring affect, feelings, and emotion in advertising. *Current issues in Research in Advertising* Vol. 13, Issue 2: 241-274
- Young, C (2006) *Negative Emotions*, Admap
- Zajonc, R.B. (1980) Feeling and Thinking: Preferences need no Inferences. *American Psychologist* Vol. 35, Issue 2: 151-175



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